

## **BASE UNIT FOR ROAD DELINEATING DEVICES**

### **FIELD OF THE INVENTION**

**[0001]** The present invention relates generally to traffic delineating devices and more specifically to a base unit for traffic delineating devices

### **BACKGROUND OF THE INVENTION**

**[0002]** Some currently known and used bases for channelizing and delineating traffic devices have a base unit made solely out of used tires. These base units have the advantage of recycling parts of used tires. However, they have limitations in size. Bases made of truck tire side walls require a large space, such space is frequently not safely available in situations that require the use of delineating traffic devices. In addition they are not quite friendly in handling due to large size. Existing devices using stacked car side walls have the propensity to roll if knocked over, potentially creating a serious hazard to traffic. Besides, when a number of side walls are stacked to achieve increased stability, the safety requirement that the base be separable from the body in high impact is jeopardized.

**[0003]** Another prior art base unit consists of a plastic container filled with bulk or liquid ballast. This kind of base unit does not have the above mentioned disadvantages, but it requires filling with ballast, which involves a messy procedure, which is desirable to avoid. Devices using sand as ballast suffer from the further disadvantage of loss of sand in the event of breakage of the base unit.

**[0004]** A third type of prior art base unit only consisting of the pressed crumbles of recycled rubber has also been used. This kind of base avoids some of the above-mentioned limitations since it is practical, aesthetic and ergonomic. However, manufacture of this unit is quite costly. These bases are made of recycled, but not local raw material, thus adding high distribution cost to already higher production cost.

**[0005]** All above-mentioned devices suffer from being cumbersome due to absence of handy handle in the base.

**[0006]** United States patent no. 5,613,798 (Braverman) describes a base for a traffic control device, which utilizes all parts of a recycled tire, thus not just the side walls. The base

has a handle and an anti-roll feature, but still is limited (in lesser degree) in application by size of tires available in postindustrial marketplace, and it lacks an appealing appearance.

## **SUMMARY OF THE INVENTION**

[0007] It is therefore desirable to provide a user-friendly base unit, that has an anti-rolling feature and an ergonomic handle for moving the whole device; a unit that utilizes local recyclables; a unit that can be easily assembled by local dealer; a unit whose function and aesthetic appearance is independent of the skills and experience of the assembler.

[0008] It is also desirable to provide a base unit, which is easily installed, easily removed and easily transported, involving only low production and distribution costs, which also includes anti-rolling features and requires only a very limited transportation space.

[0009] Another advantage with the present invention is that since the base unit can partly be assembled at the location of use using local recyclables by local distributors, the present invention saves on transportation and benefits local recycling industry. The light weight of the transported part of the base unit further saves on transportation. Consequently the present invention is beneficial to the environment.

[0010] The present invention is further advantageous, since the base does not depend on size of tires, provides broader designer freedom to create a user-friendly and safe base for traffic control devices, it can further accommodate a wide variety of shapes and sizes of posts, delineators and channelizers.

[0011] It is an object of the present invention to provide an improved base unit for a traffic delineating device.

[0012] It is another object of the present invention to provide more flexibility in the functional design of a base unit for a traffic delineating device.

[0013] It is yet another object of the present invention to furnish a base unit for a delineating device with improved anti-rolling features.

[0014] In a first aspect, the present invention provides a base unit for a traffic delineating device comprising: a first surface; a second surface; and a side wall connecting the first and second surfaces to define a sleeve for housing ballast; wherein each of the first and second surfaces include an aperture for accepting an end of a body unit.

[0015] In a preferred embodiment, the first and the second surfaces are provided with rounded portions and non-rounded portions.

[0016] Other aspects and features of the present invention will become apparent to those ordinarily skilled in the art upon review of the following description of specific embodiments of the invention in conjunction with the accompanying Figures.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

[0017] Embodiments of the present invention will now be described, by way of example only, with reference to the attached Figures, wherein:

Fig. 1 is a perspective view of a traffic delineating device;

Fig. 1a is a top view of a first embodiment of a base unit;

Fig. 2 is a perspective view of the base unit;

Fig. 3 is a cross-sectional view taken along the line 3-3 of Fig. 2;

Fig. 4 is a bottom perspective view of the base unit with the bottom portion removed;

Fig. 5 shows an interior view of the base unit;

Fig. 6 is a top view of a second embodiment of the invention;

Fig. 7 is a top view of a third embodiment of the invention;

Fig. 8 is a top view of a fourth embodiment of the invention; and

Fig. 9 is a top view of a fifth embodiment of the invention.

## **DETAILED DESCRIPTION**

[0018] Generally, the present invention provides a traffic delineating device comprising a base unit and a body unit extending upwardly via a first aperture in the base unit, the base unit comprising a first surface having the first aperture and a second surface having a second aperture, the surfaces being joined together around a substantial section of their perimeters via a side wall, the side wall together with the first surface and the second surface limiting and defining an interior sleeve of the base unit, the side wall further having

an opening for inserting ballast between the first and second surfaces into the sleeve, and the ballast being fitted to be held by the sleeve.

[0019] A traffic delineating device **10** is shown in Figure 1. The traffic delineating device **10** comprises a body unit **14** extending upwardly from an aperture (shown in Figure 1a) in a base unit **12**, whereby the base unit is connected with the body unit **14**. The base unit **12** comprises a first surface **25** joined along a substantial section of its perimeter to a second surface **26** via a side wall **29**. The base unit **12** can be constructed of any suitable weather and impact resistance material, but is preferably a light-weight material such as polyethylene or other plastics. First surface **25** comprises a non-rounded portion **16** and a rounded portion **27**, while second surface **26** comprises a non-rounded portion **18** and a rounded portion **28**. The material used is preferably flexible enough to enable bending of the first non-rounded portion **16** of the base unit **12** and the second non-rounded portion **18** of the base unit **12** so as to close an opening **20** of the base unit **12**.

[0020] Figure 1a shows the first surface **25** of the base unit **12** and from this Figure an oval aperture **23** can be seen. From Figure 1a it can also be seen that a substantial part of the first surface **25** actually is the rounded portion **27** of the first surface **25** and that the rounded portion **27** is connected to the non-rounded portion **16** of the first surface **25** via two indents **30** and **36** along the edge of the rounded portion **27**. The non-rounded portion **16** starting from the indent **30** is not rounded, but has three sides **301**, **302**, **303** and a fourth side, which fourth side is directly connected to the rounded portion **27**. The two sides **301** and **303** together with the fourth side form a shape, which is somewhat triangular, with the fourth side preferably being the longest side and the sides **301** and **303** preferably being of approximately the same length, whereas the side **302** is preferably shorter than the other sides.

[0021] Referring now to Figure 2, the second surface **26** of the base unit is preferably of the same shape and size as the first surface **25**. Also an aperture of the second surface **26** is preferably of the same shape and size as the aperture **23** of the first surface **25**.

[0022] The non-rounded portion **16** can be bound together with the corresponding non-rounded portion **18** of the second surface of the base unit **12** for closing the opening **20**, which is for inserting and removing ballast **31**. If the opening **20** is closed, the ballast **31** is not likely to slip through the opening **20**.

**[0023]** The means for tying the non-rounded portions **16** and **18** together are preferably twisted wires **32** and **34**, but any kind of adequate fasteners, such as staples, rivets or wires can be used.

**[0024]** Each non-rounded portion **16** and **18** of the base unit is further provided with handles **41** and **43** for lifting and carrying purposes. The handle **43** is preferably formed by making a hole **33** close to the smallest side **302** in the non-rounded portions **16** and **18**, whereby the handle **43** comprises the portions between the smallest side **302** of the non-rounded portion **16** and the hole **33**. The handle **41** is formed in the same way by making a hole in the non-rounded portion **18**. However, the handles **41** and **43** can be any other type of handle that is designed to be held or operated with the hand. A preferred shape of the hole **33** can be seen from Figure 2. The hole **33** also assist in tying the non-rounded portions **16** and **18** together, when the opening **20** needs to be closed, since the hole **33** is a hole for the wires **32** and **34**, which are put through the hole **33** and around the handle **41** of the second surface **26** and the handle **43**, so as to encircle the handles **41** and **43** of both first and second surfaces. The wires **32** and **34** are thereafter twisted together, whereby the opening **20** is closed.

**[0025]** When a traffic delineating device is knocked over it is possible that a round base unit may start to roll like a wheel. In order to prevent the base unit **12** from rolling, the base unit **12** is equipped with an anti-roll feature. The anti-roll feature of the present invention is due to the fact that the base unit comprises a non-rounded portion **16**, whereby the non-rounded portion **16** prevents the base unit **12** from rolling, should the device be overturned. In one embodiment the rounded portion **27** of the base unit **12** is not completely round, but rather oval, which makes it even more difficult for the base unit **12** to roll. Also the indents **30** and **36** makes it difficult for the base unit **12** to roll.

**[0026]** From Figure 2 the central aperture **23** and a first ledge **35** of the first surface **25** and a first ledge **37** of the second surface **26** of the base unit **12** can be seen. The ledge **35** is located along a perimeter of the aperture **23** of the first surface **25** and the ledge **37** is located along a perimeter of the aperture of the second surface **26**. The purpose of having the ledges **35** and **37** is to create a contact surface between the body unit **14** and the base unit **12** and to prevent the ballast **31** from sliding through the aperture **23**.

[0027] Again referring to Figure 2, the ballast **31** is inserted through the opening **20** into a designated area, which is a sleeve **42**, of the base unit **12**. The ballast **31** is fitted to be encompassed and held by the sleeve **42**. The ballast **31** can also be removed through the opening **20**, when ties are removed.

[0028] Figure 3 shows the base unit **12** as a cross-sectional side view and from this Figure the ledges **35** and **37** can be more clearly seen.

[0029] From Figure 3 it can also be seen that a distance **A** between the two ledges **35** and **37** is normally smaller than a width **B** of the ballast **31**, thereby preventing the ballast **31** from sliding through the aperture **23**. The ledges **35** and **37** are preferably flexible as to enable the ballast **31** to be easily pushed through, when inserted. However, when the ballast **31** has been put inside the base unit **12** and placed in the sleeve **42**, the ballast **31** cannot fall out by itself without force applied.

[0030] Figure 4 shows a bottom perspective cross-sectional view of the base unit **12**. In this figure the ballast **31** is more clearly visible. Figure 4 shows the sleeve **42**, which is surrounded by the side wall **29** and the first surface **25** of the base unit **12**.

[0031] The aperture **23** is used for the body unit **14** of the traffic delineating device **10**, which is fitted into the aperture **23**. If the first surface aperture is slightly larger than the aperture for the second surface, the traffic safety feature of the base unit **12** being separable from the body unit **14** in the event of a high impact can be maintained.

[0032] Now referring to Figure 5, the ballast **31** inside of the base unit **12** preferably comprises post-industrial material such as at least one segment of tread from recycled vehicle tires. The ballast **31** is preferably built of flexible stripes, such as the tread portion of recycled rubber, recycled conveyor belts or other flexible, solid, heavy post-industrial non-metal stripes, wound in a cylindrical coil and tied to remain in this shape. The coil-shaped ballast **31** is preferably tied with wires **50**, **51**, **52**, **53** and **54**, but any other adequate means for holding the ballast **31** together in a coil-formed shape can be used. The coil-shaped ballast **31** preferably has an aperture **56** to allow passage of the body unit **14** of the traffic delineating device **10** through the ballast **31**. The aperture **56** is preferably slightly larger than the aperture **23** so as to ensure that the ballast **31** fits into the base unit **12**. The coil-shaped ballast **31** further preferably has an outside diameter, which is larger than the opening **20** of the base unit **12**, thereby preventing the ballast **31** from being accidentally extracted once

installed, in case the non-rounded portions **16** and **18** are not properly secured. Since the outside diameter of the coil-shaped ballast **31** is larger than the opening **20** of the base unit **12**, the ballast **31** has to be squeezed in through the opening **20** to be set in position.

[0033] The aperture **56** of the coil-shaped ballast preferably surrounds the ledges **35** and **37** of the apertures in the base unit's first and second surfaces, thereby forming a throughout aperture in the base unit.

[0034] Therefore the ballast **31** is preferably round before being inserted into the base unit **12**, but when squeezed into the base unit **12** the ledges **35** and **37** limit the ballast's expansion and therefore the ballast **31** will somewhat take the shape of the aperture **23**.

[0035] For instance, if the aperture **23** has a polygonal shape, the circumference of the ballast's aperture is chosen, by giving the aperture **56** of the cylindrical coil of stripes a certain size when winding, so as to accommodate the polygonal shape of the aperture **23** inside the aperture **56**.

[0036] Figures 6-9 reveal some different shapes that can be used for the aperture **23**. Figure 6 shows the first surface **25** of a base unit **12** with a circular central aperture **23**. Figure 7 shows the first surface **25** of a base unit **12** with a rectangular central aperture **23**. Figure 8 shows the first surface **25** of a base unit **12** with a hexagonal central aperture **23**. Figure 9 shows the first surface **25** of a base unit **12** with a triangular central aperture **23**. The aperture **23** can also be square, octagonal or polygonal. Preferably, the corners of the central aperture are rounded, but they may also be left untreated.

[0037] Preferably the apertures of the first and second surfaces of the base unit are centrally placed within the first and second surfaces.

[0038] The above-described embodiments of the present invention are intended to be examples only. Alterations, modifications and variations may be effected to the particular embodiments by those of skill in the art without departing from the scope of the invention, which is defined solely by the claims appended hereto.